

# Cognitive Biases in Human Reasoning

How and why they systematically develop

## The Brain's Decision-Making Toolkit

Our brains are constantly making decisions, often without us even realizing it. To navigate the complexities of the world efficiently, the brain employs a variety of cognitive processes. These processes, while generally helpful, can also systematically lead to cognitive biases.

- **Heuristics:** These are mental shortcuts or rules of thumb that simplify decision-making. They allow us to quickly assess situations without engaging in exhaustive analysis. Examples include the availability heuristic (relying on easily recalled information) and the representativeness heuristic (judging based on stereotypes). These speed things up, but they sacrifice accuracy.
- **Attention:** What we pay attention to dramatically shapes our perception and understanding. Attention is a limited resource, meaning we selectively focus on certain information while filtering out others. This selective attention can lead to biased judgments if we consistently overlook critical evidence.
- **Perception:** Perception is not a direct reflection of reality but is instead constructed by our brains based on sensory input and prior experiences. This constructive process is prone to biases. For example, confirmation bias can influence how we interpret information to align with existing beliefs.
- **Memory:** Our memories are not perfect recordings of past events. They are reconstructed each time we recall them, making them susceptible to distortions and biases. The recency effect, for example, can make us overemphasize recent information, while source amnesia can lead us to forget the origin of information, making it harder to assess its reliability.

## Availability Bias in Action

Imagine you are asked whether more words in the English language start with the letter 'K' or have 'K' as their third letter. Many people quickly answer that more words start with 'K.' This is because it's easier to think of words starting with 'K' (like *kite, king, know*). However, the reality is that there are significantly more words with 'K' as the third letter. The ease with which we can recall instances (words starting with 'K') influences our judgment, leading to the availability bias. This bias impacts our perception of risk, how we evaluate news and statistics, and even how we make investment decisions.

# The Systematic Nature of Cognitive Biases

## Energy Saving:

Our brains are wired to conserve energy. Engaging in deep, analytical thinking requires significant cognitive effort. Heuristics allow us to make quick judgments with minimal energy expenditure. This is efficient, but leads to biases.

## Speed of Processing:

In many situations, quick decisions are necessary for survival or efficiency. Heuristics provide a fast and effective way to process information, allowing us to react rapidly to our environment. This favors speed over accuracy.

## Memory Limitations:

Our memory is not unlimited. We can only hold a certain amount of information in our working memory at any given time. Heuristics help us manage these limitations by simplifying information and focusing on what seems most relevant, even if that relevance is skewed.

## Activity: The Recruiter's Dilemma

Imagine you are a recruiter tasked with hiring a software engineer. You have two candidates:

- **Candidate A:** Graduated from a prestigious university, has excellent technical skills, but their resume includes a controversial social media post from several years ago expressing a strong political opinion.
- **Candidate B:** Graduated from a less well-known university, has good (but not exceptional) technical skills, and has a perfectly 'clean' social media presence.

Consider the following questions:

1. Which candidate would you initially favor, and why?
2. What cognitive biases might influence your decision (e.g., confirmation bias, halo effect)?
3. How could you mitigate these biases to make a more objective assessment of each candidate's suitability for the role? Consider blinding yourself to certain data, or using an algorithm.

## Final Thoughts: The Importance of Awareness

Understanding how cognitive biases arise is crucial for improving our decision-making and reasoning abilities. By recognizing the systematic ways in which our cognitive processes can lead us astray, we can take steps to mitigate their influence. This includes actively seeking out diverse perspectives, challenging our assumptions, and employing strategies to promote more objective evaluations. Ultimately, awareness of cognitive biases empowers us to make more informed and rational choices in all aspects of our lives.